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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): 1001.1530101

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on OCTOBER 18, 2007

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Typed or printed name THU H. LE-TO

Application Number	Filed
10/667,909	SEPTEMBER 22, 2003

First Named Inventor: RICHARD F. MURPHY

Art Unit	Examiner
3763	CHRISTOPHER KOHARSKI

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. ☑

This request is being filed with a notice of appeal. ☑

The review is requested for the reason(s) stated on the attached sheet(s). ☑
Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☑ attorney or agent of record.
Registration number 41,376

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

Signature

J. SCOT WICKHEM
Typed or printed name

612.677.9050
Telephone number

October 18, 2007
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	RICHARD F. MURPHY	Confirmation No.:	9920
Serial No.:	10/667,909	Examiner:	C. KOHARSKI
Filed:	SEPTEMBER 22, 2003	Group Art Unit:	3763
Docket No.:	1001.1530101	Customer No.:	28075
Title:	SURFACE MODIFIED REINFORCING MEMBER FOR MEDICAL DEVICE AND METHOD FOR MAKING SAME		

PRE-APPEAL CONFERENCE BRIEF

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Thu H. Le-To — OCTOBER 18, 2007 (Date)

Dear Sir:

Appellants have carefully reviewed the Final Office Action of May 18, 2007 and the Advisory Action of August 8, 2007. Currently, claims 1-56 are pending in the application; claims 1-40 have been withdrawn from consideration and claims 41-56 have been rejected by the Examiner. Appellants hereby request a pre-appeal conference and file this pre-appeal conference brief concurrently with a Notice of Appeal. Favorable consideration of the claims is respectfully requested.

The Examiner rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by Cohen, U.S. Patent No. 5,330,521. However, Cohen does not disclose all the elements of the claimed invention. For example, claim 41 recites "providing one or more metallic filaments..., the one or more metallic filaments including a metallic surface having a portion

with an initial surface area; [and] treating at least the portion of the surface of the one or more metallic filaments to provide a final surface area that is greater than the initial surface area."

The Examiner argues in the Final Office Action that Cohen teaches "treating at least the portion of the surface (col. 9, ln 30-45) to provide a final surface area that is greater than the initial surface area" and argues again in the Advisory Action that "Cohen (5,330,521) discloses a wire coil that is etched and tapered for use in the catheter. Examiner asserts that both of these actions, etching and tapering the wire coil will cause an increase in surface area." Appellants must respectfully disagree.

Etching is a process that does not necessarily result in an increase of surface area of an object and Cohen, so far as applicants can determine, do not disclose an etching process that necessarily results in an increase in surface area. Etching is a method of removing material by chemical action. A material removal process may, as in the case of sanding a piece of wood, actually decrease the surface area. The same material removal process, depending on the specifics of the application, may be used to either increase or decrease the surface area of an object. For example, one may carve a stick by smoothing out its surface and thereby decrease the surface area of the stick or one may carve a stick by carving grooves or designs into the surface of the stick and thereby increase the surface area of the stick.

Cohen teaches using etching to do two things: (1) remove oxides or films from the surface of the wire core as taught in column 6, lines 52-65 and (2) taper the wire core as taught in column 9, lines 29-42. As discussed below, Cohen is silent as to how either process affects surface area and neither process requires an increase in surface area.

Cohen teaches that removing the oxides or films improves the electrical continuity between the wire core and the electrically conductive layer and promotes mechanical adhesion. Neither result requires an increased surface area.. In fact, a rougher surface may actually impede electrical continuity between the wire core and the electrically conductive layer. Cohen is silent as to how this etching affects the surface area, but it is certainly not inherent that this etching process results in an increase in surface area. Oxides and films are more formal terms for rust and tarnish, which do not typically form uniformly and quite often leave the rusted and tarnished surface rougher (e.g. having more surface area) than the surface when it was rust free. The removal of such oxides and films may therefore restore the surface

to a smoother state having a reduced surface area. In the case where the presence of the oxides and films do not measurably increase the surface area, one must still recall that the etching process is a material removal process. The wire core is a cylinder, which will have a certain diameter prior to etching and a lesser diameter after etching. If the etching process does not actually make the surface smoother by the removal of the oxides, it still makes it smaller. The wire core after etching has the lesser diameter and will therefore have less surface area than it did prior to the etching process. An etching process that does not increase the surface roughness and merely removes oxides and films will improve the electrical continuity simply through the elimination of the oxides and films, which typically have more electrical resistance than the unoxidized metal core or conductive layer. Likewise, mechanical adhesion will be improved by the removal of materials that are either difficult to bond to or have a tendency to flake off. Therefore, one cannot reasonably conclude that this etching process results in an increase of surface area.

Similarly, Cohen teaches etching the wire core to taper it. Tapering an elongate wire by material removal necessarily results in a decrease of surface area. The general formula for the surface area of a function rotated about the x-axis is: $2\pi \int_a^b f(x)\sqrt{1+(f'(x))^2}\,dx$. Where the function describes a cylinder of uniform diameter having a radius of r_1 and length l, the formula reduces to $2\pi \cdot r_1 \cdot l$. Where the function describes a cylinder uniformly tapering along a length of l from a radius of r_1 to a radius of r_2, the formula reduces to $2\pi \cdot l\left(\frac{(r_2 - r_1)}{2} + r_1\right)\sqrt{\frac{(r_1 - r_2)^2}{l^2} + 1}$. One can use these two formulas to compare surfaces areas of a wire before and after a tapering operation. For example, take a wire of 200 cm in length with a radius of 0.1 cm. Using the first formula, this wire has a surface area (exclusive of the ends) of approximately 126 square centimeters. If this wire is given a uniform taper so that the one end still has the 0.1 cm radius and the other has a 0.05 cm taper, the second formula gives a surface area of approximately 94 square centimeters, a significant reduction in surface area. As mentioned, this reduction of surface area holds true for the tapering of any elongate cylinder such as a wire. This makes intuitive sense; the calculus operation is, in essence, the summing up of the circumferences of all the circles that make up the cylindrical wire. If the

wire is tapered, however, one is summing up successively smaller circumferences, which corresponds to a decrease in total surface area.

In sum, the § 102 rejection over Cohen is improper because Cohen does not teach each and every element of the claimed invention. Neither Cohen nor the appellant's application teach that etching always increases surface area or roughness. Moreover, the processes taught by Cohen of removing oxides and films, promoting surface adhesion with the conductive layer and tapering are processes that likely decrease surface area.

For at least the reasons mentioned above, all of the pending claims are allowable over the cited prior art. Issuance of a Notice of Allowance in due course is requested. If a telephone conference might be of assistance, please contact the undersigned attorney at (612) 677-9050.

Respectfully submitted,

RICHARD F. MURPHY

By his attorney,

Date: October 18, 2007

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